



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/944,066	08/30/2001	Charles A. Howland	W0490/7030 RJP	8318
24222	7590	03/24/2004	EXAMINER	
MAINE & ASMUS 100 MAIN STREET P O BOX 3445 NASHUA, NH 03061-3445			BOYD, JENNIFER A	
			ART UNIT	PAPER NUMBER
			1771	

DATE MAILED: 03/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/944,066	HOWLAND, CHARLES A.
	Examiner Jennifer A Boyd	Art Unit 1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 30 December 2003.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) 40-62,67-78,87,91-92,96,100,107-121,126-129,132,135-158,162-199 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1,6-24 and 29-39 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>1 page</u> .	6) <input type="checkbox"/> Other: _____

U.S. Patent and Trademark Office
PTOL-326 (Rev. 04-01)

Office Action Summary

Part of Paper No. 0922

Continuation of Disposition of Claims: Claims pending in the application are 1,6-24,29-62,67-78,87,91,92,96,100,107-121,126-129,132,135-158 and 162-199.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Species I, claims 1, 6 – 24 and 29 – 39, in the Response dated December 30, 2003 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1, 6, 7, 9, 11 – 12, 15 – 18, 21 – 23 and 29 – 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Bachner, Jr. et al. (US 5,471,906).

Bachner, Jr. is directed to a body armor cover for use in protecting a wearer from penetration injuries from bullets and other hazards (Abstract).

As to claim 1, Bachner, Jr. teaches an *armour panel* 22 containing a *cover* 26 and a *penetration-resistant armor layer* 28 (column 3, lines 40 – 53). See Figure 5. Bachner, Jr. teaches that the *penetration-resistant armor layer* 28 comprises multiple layers of flexible penetration-resistant fabric, equated to multiple layers of Applicant's "first layer", such as woven aramid fibers of KEVLAR 29 or 129 or non-woven reinforced plastic called SPECTRA SHIELD (column 3, lines 41 – 53). Bachner, Jr. teaches that the cover can be laminated to the *penetration-resistant layer* 28 by means of a suitable *breathable material* 34, equated to Applicant's "second

layer”, which can be selected from polyurethanes, porous polyolefins, porous fluorinated polymers and the like (column 4, lines 30 – 45).

As to claim 6, Bachner, Jr. teaches that the flexible penetration-resistant fabric, or “first layer”, can be made of KEVLAR (a type of para-aramid) or SPECTRA (an ultra-high molecular weight polyethylene) (column 3, lines 41 – 53).

As to claim 7, according to pages 11 and 12 of the Applicant’s Specification, KEVLAR and SPECTRA are high-tenacity fibers with having a breaking strength of at least about 10 grams/denier.

As to claim 9, Bachner, Jr. teaches a *cover 26* of *fabric material 32*, which is co-extensive with the first and second layers (See Figure 5).

As to claim 11, Bachner, Jr. teaches that the *cover 26* of *fabric material 32*, or “third layer”, can comprise a fabric material such as nylon, rip-stop nylon or an absorbent synthetic such as COOLMAX polyester fabric which is laminated to or coated with a *breathable material 34* (column 4, lines 30 – 35). According to page 12 of Applicant’s Specification, nylon or polyester fibers have a tensile breaking strength of less than about 10 grams/denier.

As to claim 12, Bachner, Jr. teaches that the *cover 26* of *fabric material 32*, or “third layer”, comprises polyester or nylon fabric. It is known in the art that nylon is a type of polyamide.

As to claims 15 and 36, Bachner, Jr. teaches that the *cover 26* of *fabric material 32*, or “third layer”, can be laminated to the *penetration-resistant layer 28*, or “first layer”, by means of a suitable *breathable material 34*, or “second layer”, which can be selected from polyurethanes,

porous polyolefins, porous fluorinated polymers and the like (column 4, lines 30 – 45). The use of lamination implies a type of thermal bonding of the layers.

As to claims 16 - 18, 23 and 33 - 35, Bachner, Jr. teaches a *breathable material* 34, or “second layer”, that is sandwiched by a *cover* 26 of *fabric material* 32, or “third layer”, and a *penetration-resistant layer* 28, or “first layer” (column 4, lines 30 – 45). The suitable *breathable material* 34 can be a continuous, non-porous coating of polyurethane applied to the microporous expanded PTFE membrane (column 5, lines 10 – 20). The Examiner equates the polyurethane coating to Applicant’s “adhesive coating”.

As to claims 21 and 22, Bachner teaches the use of multiple penetration resistant layers 28 adjacent to the *breathable material* 34, or “second layer”. The Examiner equates the *penetration resistant layer* that is immediately adjacent to the *breathable material* 34 to Applicant’s “first layer” and the next *penetration resistant layer* to Applicant’s “third layer”. Additionally, the Examiner can equate the *penetration resistant layer* immediately adjacent to the *breathable material* 34, or “second layer”, to Applicant’s “fourth layer”.

As to claim 29, Bachner, Jr. teaches that the coating of *breathable material* 34, or “second layer”, conforms to the surface of the *cover* 26 and the *penetration-resistant layer* 28, or “first layer” (column 4, lines 30 – 45).

As to claim 30, Bachner, Jr. teaches that the coating of *breathable material* 34, or “second layer”, is a material which is liquid water repellent while allowing moisture vapor to pass freely through the breathable material (column 4, lines 35 – 40).

As to claims 31 and 37 - 38, Bachner, Jr. teaches that the coating of *breathable material* 34, or “second layer”, can be a sheet of porous fluorocarbon, in particular,

polytetrafluoroethylene (PTFE) (column 4, lines 45 – 50). According to page 32 of the Applicant's Specification, polytetrafluoroethylene is considered to be a hydrophobic material.

As to claim 32, it should be noted that the Examiner considers term "separable" to be a "capable of" type limitation. It has been held that an element is "capable of" performing a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138. Although it has been noted above that the "first layer" is attached to the "second layer", they are *capable of* being separated from one another.

As to claim 39, Bachner, Jr. teaches that the *breathable material* 34, or "second layer", can be a sheet of porous fluorocarbon, in particular, polytetrafluoroethylene (PTFE) is resistant to water-penetration while permitting the transmission of moisture vapor (column 4, lines 45 – 50).

Claim Rejections - 35 USC § 102/103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 24 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Bachner, Jr. et al. (US 5,471,906).

Although Bachner, Jr. et al. does not explicitly teach the claimed coating has a modulus of elasticity of less than about 100,000 psi, it is reasonable to presume that said coating has a

modulus of elasticity of less than about 100,000 psi. Support for said presumption is found in the use of like materials (i.e. a polyurethane coating) which would result in the claimed property.

The burden is upon the Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed property a modulus of elasticity of less than about 100,000 psi would obviously have been present once the Bachner product is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977) as to providing of this rejection made above under 35 USC 102.

Claim Rejections - 35 USC § 103

6. Claims 8, 10 and 13 - 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bachner, Jr. et al. (US 5,471,906).

Bachner, Jr. et al. discloses the claimed invention except for that the woven fabric has a fill yarn cover of at least about 75% and warp yarn cover factor of at least about 100% as required by claims 8 and 10, a third layer has at least one yarn having a weight per unit length of between 20 and 70 denier as required by claim 13 and the first layer comprises a woven fabric with fill yarns having a weight per unit length of a first value and the warp yarns have a weight per unit length of a second value that is greater than the first value as required by claim 14. It should be noted that denier and cover factor are result effective variables. For example, as the denier increases, the fabric becomes stronger and heavier. As to the cover factor decreases, the fabric becomes more flexible and air permeable thus breathable. It would have been obvious to one having ordinary skill in the art at the time the invention was made to create a woven fabric has a fill yarn cover of at least about 75% and warp yarn cover factor of at least about 100% as

required by claims 8 and 10, a third layer has at least one yarn having a weight per unit length of between 20 and 70 denier as required by claim 13 and the first layer comprises a woven fabric with fill yarns having a weight per unit length of a first value and the warp yarns have a weight per unit length of a second value that is greater than the first value as required by claim 14 since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In the present invention, one would have been motivated to optimize the weight per unit length of the fabric to create a strong, breathable and durable outer layer.

7. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bachner, Jr. et al. (US 5,471,906) in view of Thomas et al. (US 2003/0022583 A1).

As to claim 19, Bachner, Jr. et al. teaches the claimed invention except fails to disclose that the first layer can be in the form of a felted fabric.

Thomas is directed to a ballistic resistant fabric (Abstract). Thomas teaches that the fabric includes at least two types of fibrous materials, which are blended and consolidated together, preferably by needlepunching, to create a single layer of non-woven, composite material (Abstract). In one embodiment, the blend of fibrous materials include Spectra and Kevlar (page 4, [0073-0077]). It should be noted that a felted fabric results from needlepunching.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the needlepunched nonwoven fabric of Thomas in the composite textile material of Bachner, Jr. et al. motivated by the desire to improve the penetration resistance of the material. It should be noted that, in woven fabrics, a sharp object can push aside fibers or yarns

from its path and penetrate the fabric. However, needlepunched non-woven fabrics prevents the penetration of sharp objects in that the fibers cannot be easily moved aside due to the lack of symmetry in the fiber arrangement (Thomas, page 4, [0078]).

As to claim 20, Bachner, Jr. teaches a *breathable material* 34, or “second layer”, that is sandwiched by a *cover* 26 of *fabric material* 32, or “third layer”, and a *penetration-resistant layer* 28, or “first layer” (column 4, lines 30 – 45).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A Boyd whose telephone number is 571-272-1473. The examiner can normally be reached on Monday thru Friday (8:30am - 6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer Boyd
March 15, 2004

Ula Ruddock
Ula C. Ruddock
Primary Examiner
Tech Center 1700